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**From:** Donohue, Joyce [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BB5340EC745149EDBF80D2B8B2F9B919-JDONOHUE]  
**Sent:** 2/5/2019 9:04:03 PM  
**To:** Edmund Crouch [crouch@greentoxicology.com]  
**Subject:** RE: A missing reference in the PFOA HESD  
**Attachments:** Half-life Table.docx

Dear Edmund:

Will the attached Table help you? I believe I did find the NRC reference at one time and it would not be considered a primary source for half-life data. The attached Table summarizes the primary papers we identified that provide half-life information for the acid family. I have not updated it recently.

Joyce Donohue

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**From:** Edmund Crouch [mailto:crouch@greentoxicology.com]  
**Sent:** Tuesday, February 05, 2019 3:33 PM  
**To:** Donohue, Joyce <Donohue.Joyce@epa.gov>  
**Cc:** Laura Green <Green@GreenToxicology.com>  
**Subject:** Re: A missing reference in the PFOA HESD

Dear Joyce

Thank you, yes that's in the peer review draft version (822R14001, February 2014) where Butenhoff is mentioned as the source (at the third occurrence), but with no specific reference given so it could have been a private communication. But what was NRC (2005)? It is not in the reference list of that draft either. Does anyone have any clue what it is supposed to be, or where the claimed data actually come from. There are three NRC (2005) claims for half-life results in mice, rats, & monkeys, so if there are independent data it would be nice to know where to find them.

Edmund

Edmund A.C. Crouch, Ph.D.

Vice President & Senior Scientist  
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**781-316-1685 (landline)**

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On 2/5/19 09:43, Donohue, Joyce wrote:

Dear Edmund:

I think I can at least partially assist you. The reference to NRC (2005) is a result of an editorial error. In you note there is a period after The Gibson and Johnson sentence. Battenhoff et al (2004b) should have been the start for the next sentence.

I went back to an earlier draft of the document and found the reference to NRC (2005) was a segment of prior sentences that were removed likely because of we also had difficulty in locating the NRC reference. The original sentences were as follows:

"NRC (2005) reported half-lives of 4-6 days for male rats and 2-4 hours for female rats; there was no mention of the strains studied. These values are consistent with the half-lives reported by Kemper (2003) for male and female Sprague-Dawley rats."

The Office of Water started our assessment from an earlier assessment that had been prepared by the Office of Pollution Prevention and Toxics.

Feel free to call me if you need additional assistance.

Joyce Donohue  
202-566-1098

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**From:** Edmund Crouch [<mailto:crouch@greentoxicology.com>]  
**Sent:** Monday, February 04, 2019 3:33 PM  
**To:** Donohue, Joyce <[Donohue.Joyce@epa.gov](mailto:Donohue.Joyce@epa.gov)>  
**Cc:** Laura Green <[Green@GreenToxicology.com](mailto:Green@GreenToxicology.com)>  
**Subject:** A missing reference in the PFOA HESD

Dear Ms Donohue

I noticed that in the final PFOA HESD (EPA 822-R-16-003), of which you are the "Lead EPA Scientist" and author, there are 3 references to:

"NRC ([2005], cited in Butenhoff et al. [2004b])"

However, NRC [2005] does not appear in the reference list, and there is no such citation, nor the cited data, in the reference given as Butenhoff et al. [2004b]. . (The HESD has a reference list entry to NRC [1983] that does not appear to be anywhere cited, but that clearly precedes the experiments involved, and does not, in any case, provide the data cited.)

Could you supply the correct citation?

Edmund Crouch

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Edmund A.C. Crouch, Ph.D.

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